2 The Nature of Attitudes and Cognitive Responses and Their Relationships to Behavior

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INTRODUCTION

In the first chapter, the cognitive response approach to the study of attitude change was introduced, and the prominent role that early theorists and researchers gave to the cognitive mediation of persuasion was documented. In this chapter, we define the concepts of attitude and cognitive response more precisely and discuss the most common techniques of measurement. Finally, we discuss the relationships between attitudes, cognitive responses, and behaviors.

The originator of modern attitude measurement, Thurstone (1931), conceived of an attitude as the amount of affect or feeling for or against a stimulus. The attitude concept was subsequently broadened to include dimensions other than the affective one. In their classic investigation of opinions and personality discussed in Chapter 1, Smith, Bruner, and White (1956) conceived of an attitude as containing seven properties. For example, *salience* concerned the extent to which a particular attitude was central in the everyday concerns of a person; *object value* was the affective tone engendered by the attitude; and *orientation* concerned the action or behavioral tendencies aroused by the attitude. Scott (1968) subsequently provided an even more extensive list of 11 features of attitudes (e.g., direction, cognitive complexity, overtness, and so on).

The properties of an attitude described by Smith et al. (1956), Scott (1968), and others can be conceptualized as denoting three classes of responses: (1) *affect*—an individual's general feelings about a stimulus; (2) *cognition*—an individual's thoughts, ideas, associations, and images pertaining to a stimulus; and (3) *conation*—an individual's behavioral responses that are evoked by a stimulus. Numerous researchers have incorporated two or all three types of responses into their definitions of attitude (Allport, 1935; Harding, Kutner, Proshansky, & Chein, 1954; Katz & Stotland, 1959; Rosenberg & Hovland, 1960).

Ostrom (1969) noted that each of the three classes of responses could be used to assess how a person evaluated an object. Thus, affect would concern whether the person had positive or negative feelings toward an object; cognition would concern whether the person associated positive or negative attributes (e.g., qualities, images, and so forth) with the object; and conation would concern whether the person behaved in a positive or negative manner toward the attitude object. Ostrom (1969) concluded that although each type of response could be used to measure an evaluative reaction to an object, the responses were conceptually independent (i. e., each class of response had its own unique determinants).

Recently, there has been a trend back toward the restricted Thurstone (1931) definition. Consider the following recent definitions of attitude:

> Attitudes are likes and dislikes [Bem, 1970, p. 14]
>
> [An attitude] is a feeling that an attitude object is good or bad, fair or unfair [Collins, 1970, p. 71]
>
> [Attitudes] are dispositions to evaluate objects favorably or unfavorably [Insko & Schopler, 1972, p. 1].
>
> . . . the major characteristic that distinguishes attitude from other concepts is its evaluative or affective nature (Fishbein & Ajzen, 1975, p. 11).
>
> Attitudes are the core of our likes and dislikes for certain people, groups, situations, objects, and intangible ideas [Zimbardo, Ebbesen, & Maslach, 1977, p. 20].

These restricted definitions identify the attitude concept most closely with affect, or a general evaluative reaction. Thus, one's global feelings about an object, which constitute the attitude ("I like candy"), can be distinguished from one's cognitions ("Candy is sweet"; "Candy prices are rising") and conations ("I eat candy often"). Although we define *attitude* as a *general and enduring favorable or unfavorable feeling about an object or issue*, this does not mean that cognitive and behavioral responses are ignored. Rather, they are accorded independent conceptual status, and this chapter is devoted to a consideration of the meaning and measurement of, and the interrelationships between, cognitions, behaviors, and attitudes.

THE MEASUREMENT OF ATTITUDES

Ever since Thurstone developed the first attitude scale, attitude measurement techniques have focused on assessing a general evaluation of, or affective response to, an attitude object. They have focused on measuring how much one likes or dislikes, or feels generally favorable or unfavorable toward, some object or issue.

Classic Techniques

Thurstone (1928) measured attitudes by presenting a set of statements to subjects and asking them to indicate the ones with which they agreed. The statements expressed evaluations ranging from very unfavorable toward the attitude object to very favorable. To construct a Thurstone scale, a large number of statements is initially given to a panel of judges who are instructed to place each statement objectively into one of 11 equally spaced categories depending on the degree of favorableness or unfavorableness expressed by each statement toward the attitude object. Each statement is assigned the median scale value chosen by the panel of judges. A person's attitude score on a Thurstone scale is determined by computing the median favorability value of all the statements the subject endorses. Table 2.1 contains an abbreviated version of a Thurstone scale measuring attitudes toward capital punishment. Of course, in actual use of the measure, the scale values would not appear with the statements.

Thurstone scaling has the advantage of assigning subjects an attitude score that is meaningful in terms of an underlying evaluative continuum. However, there are many cases in which this absolute information is not needed; cases in which one need only know who is relatively favorable or unfavorable toward a particular object or issue. Likert (1932) suggested a method that provides such "relative" scores and is less time-consuming to implement than the Thurstone scale because it does not involve determining objective scale values for each of the statements used in the measure. Further, its ability to estimate "relative" scores is just as reliable as that of the Thurstone method. With Thurstone's method, scale construction and scale administration are two distinct steps. With Likert's method, construction and administration can occur simultaneously; no preliminary judging is required. Instead, subjects rate how much they personally agree with each of a series of statements similar to those found in the Thurstone scale (rather than rating each item's objective favorableness). The subject's ratings for each of the items are then correlated with the sum of all the ratings. A person's final attitude score on the Likert scale is his or her total score for the subset of the items (e.g., 6 to 10 statements) whose ratings correlate best with the total score. Table 2.1 includes an abbreviated version of a Likert scale.

TABLE 2.1
Five Types of Scales for Measuring Attitudes
Toward Capital Punishment

Thurstone Equal Appearing Interval[a]

Check all the statements with which you agree.

(1.5) ____ We can't call ourselves civilized as long as we have capital punishment.
(10.4) ____ Any person, man or woman, young or old, who commits murder should pay with his own life.
(5.5) ____ It doesn't make any difference to me whether we have capital punishment or not.
(2.4) ____ Capital punishment cannot be regarded as a sane method of dealing with crime.
(7.2) ____ Capital punishment may be wrong, but it is the best preventative to crime.

Note. Scale values for each item are given in parentheses. A person's attitude score is the median scale value of the statements checked.

[a]Adapted from Shaw and Wright (1967)

Likert Scale

Circle the response that best represents your opinion.

SA—Strongly Agree A—Agree U—Undecided D—Disagree SD—Strongly Disagree

(4)	(3)	(2)	(1)	(0)	
SA	A	U	D	SD	Capital punishment is just and necessary.
(0)	(1)	(2)	(3)	(4)	
SA	A	U	D	SD	I do not believe in capital punishment under any circumstances.
(0)	(1)	(2)	(3)	(4)	
SA	A	U	D	SD	We cannot call ourselves civilized as long as we have capital punishment.
(4)	(3)	(2)	(1)	(0)	
SA	A	U	D	SD	Capital punishment should be used more often than it is.

Note. For each statement, an item score from 4 to 0 is assigned depending on the response circled. A person's attitude score is the sum of the item scores. Note that items unfavorable to capital punishment are reverse scored, so that disagreeing with these items is like agreeing with a favorable item.

(continued)

A third classic technique was developed by Guttman (1944). Basic to Guttman scaling is the notion of passing all lesser hurdles if one passes a higher one. Take, for example, a set of math problems, each of which is more difficult than the one that precedes it. A person with the ability to solve a difficult problem has the ability to solve all the easier problems. Similarly, think of a set of attitude statements ordered so that agreement with each succeeding one indicates an increasingly more favorable attitude. Just as a person who solves the difficult math problem would be expected to solve the less difficult ones, a person willing to agree to a very favorable attitude statement would be expected to agree also to less favorable ones. To the extent that this occurs, the items form a Guttman scale. For instance, a person agreeing with Item 2 in Table 2.1 would probably agree with Item 1 but may or may not agree with Items 3 and 4. This method works best typically with statements that vary in some quantitative way. For example,

TABLE 2.1—*Continued*

Guttman Scale

Indicate whether you agree or disagree with each statement by circling the appropriate alternative.

Agree	Disagree	Capital punishment should be used only for the most extreme crimes (e.g., multiple murders).
Agree	Disagree	Capital punishment is justified for premeditated murder.
Agree	Disagree	Capital punishment is just and necessary.
Agree	Disagree	Every criminal should be executed.

Note. A person's attitude score is the number of statements with which he or she agrees.

Semantic Differential

Capital punishment is:

Good___ : ___ : ___ : ___ : ___ : ___ : ___Bad
Fair___ : ___ : ___ : ___ : ___ : ___ : ___Unfair

Note. For each scale, a score is assigned from −3 to +3 depending on the category checked. (The numbers typically do not appear on the scale, but the blank closest to the negative adjective—e.g., bad—is assigned a value of −3, the next blank is assigned a −2, and so forth.) A person's attitude score is the sum of the scale scores.

Self-Rating Scale

How favorable or unfavorable do you feel toward capital punishment?

1	2	3	4	5	6	7	8	9	10	11
Very Favorable										Very Unfavorable

Note. A person's attitude score is the number circled on the scale.

statements like "I would be willing to give at least $5 ($10, $15, $20) to the NAACP" are most likely to result in a Guttman scale. A person's final attitude score on a Guttman scale is obtained by summing the number of statements with which he or she gives a pro response. (For more details on scale construction, see Edwards, 1957b; and Lemon, 1973.)

Contemporary Techniques

The classic techniques of attitude measurement appear more often in textbooks than in actual experiments. They are respected but little-used procedures. Researchers have discovered that for most research purposes, an adequate measure of a person's general evaluative reaction can be obtained in a simpler and more straightforward manner by simply asking the person to rate on one or a small number of scales how positive or negative he or she feels about the attitude object.

One popular method resulted from Osgood, Suci, and Tannenbaum's (1957) work on the connotative or implied meaning of words. They found that words

could be classified along three dimensions: (1) evaluative dimension (e.g., good–bad, fair–unfair), (2) potency dimension (e.g., strong–weak, large–small), and (3) activity dimension (e.g., fast–slow, active–passive). Osgood et al.'s evaluative dimension coincides with the characteristic of an attitude measured by the Thurstone, Likert, and Guttman techniques. The subject is asked to rate the attitude object on a set of three to six 7-point evaluative rating scales anchored by bipolar adjectives such as *good–bad, kind–cruel, fair–unfair*. These bipolar adjectives have been selected via factor analysis and have been used across cultures and attitude objects (Osgood, 1965). (Two evaluative scales are presented in Table 2.1.) The response to each scale is assigned a score from −3 to +3 depending on the category checked. The subject's ratings on the different scales are then summed, and this sum represents the subject's attitude score. This response scale is called the *semantic differential*, since Osgood's initial effort was directed at categorizing the dimensions along which words had meaning (i.e., differentiating semantic space). Attitudes on virtually any topic can be assessed easily by using the semantic differential. An advantage of this technique is that it can be used to compare a person's attitude toward a variety of objects (e.g., the individual favors capital punishment more than prison reform).

Employed even more widely to assess attitudes are the single-item self-rating scales. Although rating scales vary in appearance (they may be represented by continuous lines, by lines broken by slashes, by numbers, and/or by explanatory phrases), the end points of the scale are always labeled. Table 2.1 includes a rating scale similar to those used in nationwide surveys such as the Gallup and Harris polls. The subject's task is to select the number that describes most accurately his or her opinion. Because construction time is negligible and the information provided is adequate for most research purposes, single-item self-rating scales are often used in both public opinion polling and laboratory research.

Indirect Techniques

The attitude measures discussed up to this point are constructed for use with respondents who wish to give accurate accounts of their attitudes. To the extent that respondents are unable or unwilling to give accurate accounts, the measures are not valid indicants of attitude (cf. Cook & Sellitz, 1964). For example, a *response set* refers to a biased and consistent way of responding to an attitude scale that reflects a characteristic of the respondent other than his or her evaluative reaction to the attitude object. Two of the most researched response sets are *acquiescence*— the tendency to agree with any item regardless of its content (Couch & Keniston, 1960)—and *social desirability*—the tendency to give the most socially acceptable answer to a question (Edwards, 1957a). To circumvent the response bias problem, indirect attitude measurement techniques have been developed. These techniques are meant to tap the attitude while leaving the

respondent unaware of this purpose. For example, in a *projective test* the respondent is shown a picture and is asked to tell a story about it. It is assumed that the content of the respondent's story will reflect the underlying attitude (Proshansky, 1943). Another type of indirect measure is the *information error test*, which is presented as a multiple-choice test. In this test, all the alternatives are incorrect, but the answers depart from the correct responses in ways that are consistent with either a positive or negative attitude toward the object. The answer selected is assumed to reflect the person's attitude (Hammond, 1948; Weschler, 1950). *Logical reasoning tests* have also been used as disguised measures. For example, arguments with faulty conclusions are presented, and presumably, if the respondent's attitude is consistent with the bias, he or she will judge the faulty conclusion as logically following from the premises (Waly & Cook, 1965). Finally, *physiological tests* have been employed as indirect measures of attitudes and are discussed in Chapter 4.

Indirect or disguised measures have not been used widely, partly because they are unwieldy and are often unsuitable for group administration. When reliability and validity checks have been made, the indirect measures have often been inferior to the direct attitude scales (Lemon, 1973). Although the primary advantage of indirect measures is that they control for response biases, direct attitude scales can also be constructed to minimize or control for the effects of response sets. For example, to minimize the effects of an acquiescence response set, an equal number of statements of the attitude scale may be worded and keyed in the positive and negative directions. To control for social desirability, the subjects may be required to choose between items that are equal in social desirability but that differ in the attitude represented. Finally, the validity of the direct measures is enhanced to the extent that the subjects are convinced that their responses are anonymous and that there are no right or wrong answers, because attitude items involve matters of opinion, not fact. For additional information about the problems of assessing attitudes, see Cook and Sellitz (1964).

WHAT IS A COGNITIVE RESPONSE?

An attitude refers to a general and enduring favorable or unfavorable feeling about an object or issue, whereas a cognitive response refers to a unit of information pertaining to an object or issue that is the result of cognitive processing. Cognitive processes refer to such information-processing and -structuring activity as perceiving, abstracting, judging, elaborating, rehearsing, and recalling from memory (D. A. Norman, 1976; Posner, 1973). Cognitive responses are the results of information-processing and -structuring activity and thus consist of responses such as recognitions, associations, elaborations, ideas, and images. To the extent that motivation affects cognitive processing, it affects cognitive responses (cf. Simon, 1967); to the extent that cognitive processing is inhibited

cognitive responses are inhibited (see Chapter 3). A useful method of monitoring cognitive processing, then, is to monitor the end result of that processing—the cognitive response.

What is the nature of cognitive response in persuasion? Clearly, various persuasive stimuli evoke a variety of cognitive processes and responses. For example, some responses are the results of straightforward identifications of a simple stimulus (e.g., recognizing sounds as a message); some result from rehearsal of the attributes of the stimulus (e.g., memory of the arguments in a persuasive appeal); and some result from elaborations of the stimulus (e.g., counterarguing the communication). All these reactions are included in the study of cognitive responses in persuasion. Some kinds of cognitive responses have not been studied in a persuasion context, however. For example, although there is some evidence from the experimental study of cognition that cognitive responses need be neither conscious (Treisman, 1964) nor semantically encodable (Neisser, 1967), the roles of these cognitive responses in persuasion have not been delineated.

THE MEASUREMENT OF COGNITIVE RESPONSES

How does one study objectively something as unobservable as a cognitive response to a stimulus? In the following sections, techniques for obtaining, categorizing, judging, weighting, and structuring cognitive responses are considered.

Obtaining Cognitive Responses

The first task in the measurement of "cognitive responses" is to obtain a physical representation of their existence. The method used to obtain cognitive responses should provide access to responses elicited naturally by the stimulus (e.g., a persuasive appeal) rather than by the measurement instrument. Procedures for obtaining cognitive responses are discussed next.

Mechanical Techniques. Techniques building upon Hovland, Lumsdaine, and Sheffield's button-pushing procedure (1949; noted in Chapter 1) have been employed (Beaber, 1975; Carter, Ruggels, Jackson, & Heffner, 1973). For instance, Carter and Simpson (1970) delivered printed messages to subjects at a computer console. Subjects were instructed to press keys at the console to stop the message momentarily to agree or disagree with a particular argument. They found that subjects stopped more to agree than to disagree with the message when the information contained in the message was proattitudinal and that the opposite was true when the information conatined in the message was counterattitudinal.

The average number of stops to agree and disagree did not differ when the information was neutral. These results suggest the signal-stopping technique may prove useful in future research on cognitive response to persuasion. (See Chapter 5 for a description of a similar recording technique employed by Beaber, 1975.)

A potential problem with procedures that require subjects to "do something" before, during, or after the presentation of a persuasive appeal in order to tap cognitive responses is that the request itself may elicit or alter the cognitive responses measured. The use of electrophysiological and pupillographic techniques to measure cognitive processing and/or responses provides a means of assessing the extent of this problem, because the purpose of these measures is not obvious to subjects. That is, subjects are not asked to respond; instead, the natural bodily responses elicited by the persuasive appeal are monitored without the subjects' awareness of the purpose or meaning of the measurements. These physiological procedures have been used to provide evidence that cognitive processing was actually enhanced when subjects reported verbally that cognitive responses were elicited (Cacioppo & Petty, in 1979a; see Chapter 4 for a discussion).

Reaction-time procedures, employed commonly in the study of verbal learning and verbal behavior by experimental psychologists, have also been employed recently in the study of cognitive responses in impression formation (Lingle & Ostrom, 1979; see Chapter 17) and may serve as yet another nonobvious measure of cognitive responses. This procedure, like the physiological procedures, however, has not yet provided information about the type of thoughts elicited. To date, the profile of cognitive responses has been ascertainable only by using the listing or reporting procedures discussed next.

Oral and Written Listing Techniques. By far the most common means of obtaining cognitive responses has been to instruct subjects either to list (write) or to report verbally their thoughts; each of these techniques of obtaining cognitive responses has its merits (cf. Wright, 1974a). Verbal measures are advantageous because they can be obtained quickly (it is easier to speak than write), minimizing the forgetting of one's actual responses to a communication. The written listing procedure, though slower, can be administered easily in group settings and requires only pencil and paper. The administration of these and other measures of cognitive responses is usually done in such a manner that the public nature of the measure is minimized so that subjects are less guarded about what they report.

Both oral and written measures have been used in empirical studies. For instance, as noted in Chapter 1, Janis and Terwilliger (1962) instructed subjects to read a message aloud and to verbalize all their thoughts pertaining to the message into a tape recorder. But oral measures have been used infrequently. Employed more commonly have been methods of obtaining written thought listings (Brock, 1967). For example, Greenwald (1968a) asked subjects to "col-

lect their thoughts" on an issue about which they had just read a communication and then to list those thoughts. Subjects were willing and able to provide listings of cognitive responses in accordance with these instructions.

Type of Thought Requested. Investigators have tried different instructions for obtaining the cognitive responses elicited by a persuasive appeal. Three different types of instructions have been used most commonly. The researchers have asked for a listing of: (1) thoughts elicited by the communication (e.g., Roberts & Maccoby, 1973); (2) general thoughts on the topic of the communication (e.g., Greenwald, 1968b); or (3) all thoughts that occurred to an individual during the communication (e.g., Petty & Cacioppo, 1977). Although it is unlikely that the subjects responded differently to the first two types of instructions, the request to list the thoughts elicited by the communication (i.e., the first procedure) assumes that subjects are able to distinguish those thoughts that are elicited by the communication from those that are not. Thus, it is necessary to assume that subjects are able to determine the cognitive effects of the stimulus (i.e., the communication). Recent research indicates that this assumption is dubious (cf. Nisbett & Wilson, 1977a). In the latter two instructional procedures, subjects are not asked to identify the cognitive effects of the stimulus. Instead, the well-founded assumption is made that subjects are aware of their thoughts rather than their thought processes (cf. Ericsson & Simon, 1980).

This does not mean that the latter two listing procedures yield identical results, however. For example, in a study that employed a counterattitudinal communication (Petty & Cacioppo, 1977), it was found that when subjects were instructed to "try to record only those ideas that you were thinking during the last few minutes [p. 648]," the demand to produce any particular type of cognitive response was minimal; the thoughts listed were predominantly unfavorable to the issue or neutral. However, when subjects were asked to list their thoughts on the particular topic of the communication, significantly more favorable and fewer neutral thoughts were reported. The "topic instructions" produced an experimental demand for subjects to report responses relevant to the topic and may have compelled them to show their "open-mindedness" and/or "intelligence" by generating thoughts on both sides of the issue. Because each of these profiles of thoughts may be of interest to an investigator, the instructions that provide the most useful results depend on the aims of the particular experiment.

Measurement Time. Another factor that influences the profile of cognitive responses that is obtained is the amount of time given to subjects to report their responses (Miller & Baron, 1973; Osterhouse & Brock, 1970; Wright, 1974a). In general, investigators want to assess the cognitive responses elicited by a persuasive appeal in order to study their role in the mediation of persuasion. The purpose of imposing a time limit on listing thoughts is to increase the likelihood that only those responses that have been elicited by the persuasive appeal are measured.

The time provided for listing cognitive responses has ranged from 45 seconds (Miller & Baron, 1973) to 10 minutes or longer (Greenwald, 1968b); the time interval used most commonly has been 2 to 3 minutes (Wright, 1973), but the optimal time interval depends on the purpose of the particular experiment and the nature of the experimental materials (e.g., the length of the message). For instance, if only the most salient thoughts are desired, a very brief time interval would be better than one so long that a subject would have time to reflect and select among cognitive responses or to generate new responses.

Besides the consideration of the time interval allowed to list thoughts, another concern is whether the profile of cognitive responses differs as a function of when the responses are obtained. There is a paucity of evidence concerning this question, and what exists is conflicting: some research indicates the responses measured during and after a presentation are very similar (Greenwald, 1968b), and other research suggests the responses to a persuasive appeal after its presentation are more unfavorable than responses during its presentation (Roberts & Maccoby, 1973). One issue at stake is whether the responses reported during or after the persuasive appeal reflect more accurately the cognitive responses elicited normally by the persuasive appeal. Obtaining cognitive responses after the communication can be done unexpectedly to the subject and does not require interruption of or distraction from the presentation of the communication. Obtaining responses during the communication, however, requires that the subjects know during the persuasive appeal that their cognitive reactions to the communication are being monitored. Furthermore, subjects must either interrupt the presentation of the persuasive appeal, or they must distract themselves from it to report their cognitive reactions. Consequently, measurement during the persuasive appeal may alter the responses elicited naturally by the persuasive appeal more than an unexpected measure of cognitive response obtained after the communication (Wright, 1974a). Research has indicated that including a measure of cognitive response after the advocacy does not affect the attitude reported (Insko, Turnbull, & Yandell, 1974; Petty, Wells, & Brock, 1976).

Categorizing a Cognitive Response

Once cognitive responses have been obtained, it is necessary to define categories in which to place them so that they can be analyzed statistically. Researchers have in the past coded thoughts into various categories, including "counterarguments" (Brock, 1967), "defensive reactions" (Janis & Terwilliger, 1962), "source derogations" (Wright, 1974a), "favorable thoughts" (Insko et al., 1974), "disaffirmations" (Beaber, 1975), "neutral thoughts" (Petty & Cacioppo, 1977), "point comments" (Roberts & Maccoby, 1973), "supportive thoughts" (Cialdini, Levy, Herman, Kozlowski, & Petty, 1976), "recipient-generated thoughts" (Greenwald, 1968b), and "connections" to one's personal life (Krugman, 1967).

Proposed here are three dimensions that have characterized the classification of responses in past research: (1) *polarity*—the degree to which the statement is in favor of or opposed to the advocacy; (2) *origin*—the primary source of the information contained in the person's response; and (3) *target*—the focus at which the comment is directed. These three orthogonal dimensions are proposed as a method of categorizing more systematically the cognitive responses to persuasion.

Polarity Dimension. The most reliable finding in cognitive response research has been that there is a consistent relationship between the polarity of the responses elicited by, and the yielding to, a persuasive appeal (e.g., Brock, 1967; Greenwald, 1968b; Wright, 1974a; see also Chapter 5). There are three types of polarity comments: (1) *favorable thoughts*—statements that support the advocacy; (2) *neutral thoughts*—statements that neither favor nor oppose the advocacy; and (3) *unfavorable thoughts*—statements that oppose the advocacy. Most of the research to date has concerned unfavorable thought production and persuasion, although the term *counterargument* has been used instead of *unfavorable thought*. The term *counterargument*, however, implies that the response counters an argument contained in the persuasive appeal (i.e., it has both polarity and target dimensions). Furthermore, although counterargumentation was operationally defined originally as "a declarative statement directed specifically against [the advocacy] that mentions a specific *unfavorable* or *undesirable* consequence that was not simply a restatement or paraphrase of the fact of [the advocacy]" (Brock, 1967, p. 301), it has been used recently to include a variety of statements that are unfavorable to the advocacy (Osterhouse and Brock, 1970; Petty & Cacioppo, 1977). The terms *favorable*, *unfavorable*, and *neutral thoughts* are preferred here because these terms describe accurately the attributes that characterize the polarity dimension and because classification in this manner maintains independent conceptual status for the three dimensions.

Origin Dimension. Classifying cognitive responses according to their *origin* was first proposed by Greenwald (1968b). Three classifications of origin follow: (1) *message-originated thoughts*—statements that are direct restatements or paraphrases of the communication (i.e., message recall); (2) *modified message-originated thoughts*—statements that are reactions to, qualifications of, or illustrations of the material in the communication (e.g., elaborations of, or replies to, message arguments); and (3) *recipient-generated thoughts*—statements expressing ideas or reactions not traceable directly to the communication (e.g., responses pertinent to the issue but not to a specific argument in the message).

Research employing a similar origin classification system has produced results indicating that in some cases, recipient-generated thoughts were most related to persuasion (Greenwald, 1968b; Roberts & Maccoby, 1973), and in other cases message-originated thoughts were most related (Calder, Insko, & Yandell, 1974; Insko et al., 1974). Various factors such as the subjects' prior knowledge about the message topic, availability of a schema concerning the advocacy, or ability to generate responses may all affect whether recipient-generated or message-originated thoughts are most important in persuasion (cf. Tesser, 1978). For instance, recipient-generated comments might be most important when subjects find it easy and adaptive to generate responses to an advocacy and when they have some prior knowledge on the topic (e.g., eliminating editorial comments in the news media: Roberts & Maccoby, 1973). In support of this contention are the results of numerous experiments on active versus passive participation, which demonstrate that when subjects have some prior familiarity with a topic, more persuasion results when arguments are actively self-generated than when arguments are passively received (see Chapter 1).

When subjects have little prior knowledge on an issue, as when judging a defendant's guilt in a hypothetical case (Calder et al., 1974), they probably have to rely on the information contained in the message rather than on their own belief systems, because no responses to the specific case exist prior to exposure to the persuasive appeal. (During jury selection, judges attempt to select jurors who are characterized by just such a cognitive and attitudinal state.) Experimental evidence for this view is provided by McGuire's (1962) experiments on inoculation theory, which demonstrated that when subjects have little familiarity with defending their positions on an issue (as on cultural truisms), externally provided defenses (passive) are initially superior to self-generated defenses (active) (see Chapter 1). Thus, the discrepancy that exists concerning the relative importance of recipient-generated and message-originated thoughts may be due in part to differences in the knowledge subjects have about the topic of the persuasive appeal prior to the advocacy.

Target Dimension. The *target* of the cognitive responses provides information about the effect of the persuasive appeal on the recipient's focus of attention. Empirically, targets have been classified into the following categories: (1) *message-topic thoughts*—statements pertaining to the topic of the appeal or pertaining to arguments either stated or implied in the message; (2) *source thoughts*—statements pertaining to the communicator and his or her style of communication; and (3) *audience thoughts*—statements pertaining to the recipients or potential recipients of the persuasive appeal, including oneself and significant others. Roberts and Maccoby (1973) investigated various targets and found that message and source targets accounted for most of the responses listed. Lasswell's (1948) and McGuire's (1968b, 1969a) analyses of the persuasion process suggest that an examination of *channel thoughts*—statements pertaining to the media or modality through which the appeal is transmitted—might also be fruitful.

Potential Dimensions. There are, no doubt, a variety of other dimensions that may be important, including saliency (i.e., how often the cognitive response is elicited—Smith et al., 1956) and processing mode (i.e., the emotionality of the response—Miller & Baron, 1973). For instance, concerning the latter, cognitive responses might be classified along a continuum ranging from the objective (e.g., logical ramifications) to the emotional (e.g., profane exclamations). Investigations of the processing mode may provide information about the frequency of and conditions under which reasoned, rather than emotional, belief defenses are employed and about their relative effectiveness. Information about personality characteristics (e.g., dogmatism) might also be obtained from these analyses. To date, however, only calls for classification along these dimensions exist (Miller & Baron, 1973; Smith et al., 1956; Wright, 1974a).

Judging and Weighting Cognitive Responses

Once cognitive responses have been obtained and classification dimensions have been selected, there is the need to judge the responses (i.e., assign each response to a particular category along each dimension) and to combine the responses along each dimension to obtain an index of each individual's cognitions.

With respect to the task of categorizing the responses, three methods have been employed:

1. *Judge rating*—individuals who are familiar with the scoring categories, but not with the experimental hypotheses, assign each response to a particular category (within each dimension) on the basis of their understanding of the meaning of the response (Brock, 1967; Cook, 1969; Insko et al., 1974; Roberts & Maccoby, 1973).
2. *Subject rating*—after completing the dependent variables, subjects are instructed how to categorize their responses (e.g., "Place a plus sign next to thoughts that favor the advocacy") and are asked to look back at their listed thoughts to classify them (Calder et al., 1974; Cialdini et al., 1976; Greenwald, 1968b).
3. *Judge and subject ratings*—both subjects and judges rate the responses; if there is disagreement between the independent judges' ratings, the subject's rating is employed (Cacioppo & Petty, 1979b; Petty et al., 1976).

Independent judges usually demonstrate a high degree of agreement in their classification of responses (e.g., Insko et al., 1974), but occasionally, unacceptably low concordance between raters is found (e.g., Greenwald, 1968b). Although ratings by subjects and judges are correlated highly (Petty et al., 1976), having subjects rate their own responses circumvents both the problem of low interrater reliability and the problem of judges misinterpreting the meaning of responses. Unfortunately, subjects are not always willing and/or able to comply

with the request to classify their thoughts; this problem is accentuated by the selection of several dimensions along which subjects must classify their thoughts, because subjects may either become bored with the procedure (and thus be less willing to comply) or forget what they mean by a response (and thus be less able to comply). The procedure of using both judges' ratings and subjects' ratings represents a compromise method.

Some of the listed cognitive responses may appear to be more "weighted" (e.g., more favorable or unfavorable) than others. However, research indicates that weighting the responses empirically according to their "extremity," or "favorability/unfavorability," neither alters nor strengthens the relationships found by using straightforward counts of the number of various types of comments produced. This is true both when subjects' ratings (Calder et al., 1974; Cullen, 1968; Greenwald, 1968b) and when judges' ratings (Roberts & Maccoby, 1973) are employed.

However, Petty (1977a) has demonstrated that if cognitive responses to persuasive messages are weighted by the subjects' certainty that the response is true along with extremity, then enhanced correlations with attitude are obtained both on an immediate and a delayed (1 week) posttest.

The Reliability and Validity of Cognitive Response Measures

Almost every standard reference on attitude measurement (cf. Edwards, 1957b; Lemon, 1973) stresses the importance of reliable and valid assessment. These concepts are of equal importance when measuring cognitive responses. *Reliability* refers to the extent to which a measure contains random error. A person's score should change only when the "true score" has changed and not when the weather changes or the experimenter changes. A perfectly reliable measure is internally consistent (split-half reliability) and yields the same results on repeated testings (test-retest reliability). Cullen (1968) compared the reliability of some standard attitude scales with a measure of cognitive responses. Subjects completed a Likert scale and a Thurstone scale and listed their thoughts on one of two topics, with order of assessment counterbalanced across subjects. Spearman-Brown split-half reliability coefficients and test-retest correlations indicated that all measures showed acceptably high reliabilities. Averaged over both issues (birth control and segregation), the cognitive response measure had a reliability that fell between the two attitude scales (see Table 2.2).

Validity refers to the degree to which a measuring device taps the true score that it was designed to measure. We have already noted how certain "response sets" might render an attitude measure invalid. For a measure of cognitive responses, the question of validity centers on whether or not subjects can accurately report their thoughts. Some have cautioned that there are "serious methodological questions concerning the validity of subject reports as a tool of social

TABLE 2.2
Comparisons of the Reliability of Listed Thoughts with Likert and Thurstone Attitude Scales[a]

	Split-Half Reliabilities	
	Birth Control	*Segregation*
Listed thoughts	.445	.906
Likert	.830	.837
Thurstone	.667	.439
	Test-Retest Reliabilities	
	Birth Control	*Segregation*
Listed thoughts	.664	.624
Likert	.824	.848
Thurstone	.448	.624

[a] Adapted from Cullen, 1968.

science investigation" (Nisbett & Bellows, 1977, p. 624). Most of this alarm comes from the finding that subjects are often unable to report the effect that some stimulus had on their behavior (Nisbett & Wilson, 1977b). As noted previously, however, it is not necessary to assume that a subject is aware of the cognitive or behavioral effects of a stimulus for self-report techniques to be useful in experimentation. It has long been argued that individuals are unaware of many of their motives and behaviors; yet their motives and behaviors may be ascertainable through analyses of their self-reports (e.g., Freud, 1924). Indeed, psychologists would have little to do if individuals could report accurately what the cognitive and behavioral effects of stimuli were. The cognitive response analysis described in the preceding sections makes no assumptions about a person's accessibility to stimulus–response connections; it does provide a method of studying objectively and quantitatively the cognitive mediation of persuasion, however. For example, even if a person were totally unaware of the fact that distraction inhibited one's ability to counterargue a message, it would still be possible to measure the number of counterarguments distracted and nondistracted subjects were able to generate after hearing a communication and to show that fewer cognitive responses were generated by distracted subjects (Petty et al., 1976; see also Chapter 3).

To summarize our extended discussion on cognitive response measurement, it appears that an unexpected request to list everything about which a subject thought during the presentation of a persuasive appeal, with strict time limits imposed for listing (e.g., 3 minutes), provides a useful indication of the cognitive responses elicited naturally by the persuasive appeal. The classification of the

cognitive responses may be done by judges, subjects, or both. Frequency counts of the items within each category of cognitive responses provide a satisfactory measure of the relative prominence or profile of the different cognitive response categories.

MEASURING COGNITIVE STRUCTURE

Cognitive structures provide the means by which persons organize objects and events in their environment. In order to measure cognitive structure, Zajonc (1960) had subjects describe a stimulus person "by freely listing the qualities and attributes that characterized [p. 160]" a person about whom they had read a letter. In other words, Zajonc (1960) obtained the cognitive responses (one per index card) elicited by the stimulus person. Four measures of cognitive structure were suggested: (1) *Differentiation* is a measure of the extent to which a person is capable of identifying and discriminating objects and events. The simple total of characteristics listed is the measure of differentiation. If one were interested in studying the structure of cognitive responses to a persuasive communication, the total number of topic-relevant thoughts listed could serve as the measure. (2) The cognitive responses that subjects list can come from a single category or multiple categories. The number of categories used determines *complexity*. For example, a person whose cognitive responses about capital punishment all related to one theme or category (e.g., a moral code theme: "It's immoral to kill"; "It violates God's law to take a life") would show less complexity than a person whose reactions related to several themes or categories (e.g., a moral code theme: "It's wrong to kill"; a legal theme: "The death penalty is cruel and unusual punishment and thus prohibited by the Constitution"; and an economic theme: "It costs more money to kill the killers than to have them serve life sentences"). (3) *Unity* is a measure of the interdependence of the cognitive responses. It is assessed by having the subjects indicate which cognitive responses would change if any given cognitive response were changed or untrue. The greater the number of changes resulting from a change in each of the cognitive responses, the greater the unity. (4) *Organization* is the degree to which one cognitive response or set of cognitive responses is central or dominates the relationship among the cognitive responses. For example, if changing a person's view of the morality of capital punishment led to changes in cognitive responses concerned with legal and economic aspects of capital punishment, this would indicate that the morality theme was central.

Although the structure of cognitive responses could quite easily be examined using Zajonc's measures, little work has been done on a structural analysis of cognitive responses. One exception to this is a study by Brock (1962, noted in Chapter 1). Of course, other techniques for assessing cognitive organization are adaptable to a cognitive response analysis (e.g., Scott, 1974; Wyer, 1974).

In sum, the research to date concerning the measurement of cognitive responses to persuasion has focused on a variety of empirical means of obtaining and analyzing cognitive reactions to a stimulus. Most of this work has been conducted on the level of analyzing and classifying single responses. The work on cognitive structure offers a potentially rich area of research in which structural alterations in response to a persuasive appeal might be investigated.

RELATIONSHIPS BETWEEN COGNITIVE RESPONSES, ATTITUDES, AND BEHAVIORS

Having discussed how attitudes and cognitive responses can be measured, next considered are the relationships between cognitive, attitudinal, and behavioral responses. There are two basic methods for assessing such relationships: (1) *correlational procedures*, which involve measuring the variables of interest and assessing the relationships with statistical analyses; and (2) *experimental procedures*, which involve manipulating a variable to assess its effects on a measured (dependent) variable (see Chapter 3 for a discussion of this procedure). In the next sections, the conceptual status of, and the interrelationships between, attitudes, cognitive responses, and behaviors are discussed.

Attitudes and Cognitive Responses

As noted earlier, one of the most replicated findings in the research on cognitive responses is that the favorable thoughts elicited by a communication correlate positively with attitude change, whereas the unfavorable thoughts elicited by a communication show a strong negative relationship with persuasion (see Table 5.1, Chapter 5).

Although attitudes and cognitive responses (that are scored along the polarity dimension) are related highly, they are not the same thing. As stated previously, cognitive responses are the specific products of information-processing activity that occurs at a particular moment in time, whereas an attitude represents an enduring favorable or unfavorable feeling about an object or issue. An attitude is capable of influencing (Abelson, 1963; Simon, 1967) as well as being influenced by cognitions (Petty et al., 1976; Tesser, 1978). Also, just as a cake is more than a sum of ingredients, an attitude can be more than a simple summary of cognitive responses: In the case of each, the final product (e.g., cake or attitude) may have properties not predictable on the basis of a simple listing of "ingredients" prior to mixture. For both, any alteration of the natural "cooking" process (increasing the baking temperature or limiting the time for thought) can change the nature of the end result.

What, then, is the relationship between attitude change and cognitive responses? Recall from Chapter 1 that the cognitive response approach views the recipient of a persuasive appeal as an active information processor. Cognitive responses are the results of thinking about the persuasive material presented, and the thoughts elicited by a message are believed to mediate or shape the amount of persuasion that results. In support of the view that cognitive responses mediate attitude change are the numerous studies using statistical and experimental procedures, which have revealed that (1) high correlations exist between polar cognitive responses and the amount of persuasion produced; and the more important the topic of the persuasion attempt is to the recipient, the stronger the relationship between the cognitive responses elicited and the amount of attitude change that results (Petty & Cacioppo, 1979a, 1979b); (2) manipulations that affect cognitive responses also affect persuasion (Calder et al., 1974; Petty et al., 1976; Roberts & Maccoby, 1973); and (3) implementation of statistical procedures to assess causal orderings of cognitive responses and persuasion has indicated that cognitive responses may have mediated yielding to persuasion (e.g., Greenwald, 1968b; Osterhouse & Brock, 1970) but that the reverse causal ordering was not operating (Cacioppo & Petty, 1979a, 1979b; Petty & Cacioppo, 1977).

The most parsimonious account of these findings is that cognitive responding can mediate yielding to persuasion. This does not mean that a third variable is not mediating both cognitive responses and yielding to persuasion in some contexts. It means only that the simplest account of a wide body of literature is that cognitive responding influences the final attitude. Because the chapters in Part II of this volume discuss the mediational role played by cognitive responses in attitude change produced by such variables as source credibility, message forewarnings, message repetitions, group discussion, and so forth, mediation is not discussed further here.

Cognitive Responses and Behaviors

As noted previously, cognitive responses are the product of information-processing activity. Behaviors, on the other hand, refer to any and all observable acts (i.e., response executions). Investigations of the relationship between cognitive responses and behavior have indicated that general cognitive responses aimed at changing behavior (i.e., global self-instructions) have not been correlated highly with actual behavior change (Levinger, 1970; Meichenbaum & Cameron, 1973).

Levinger (1970, 1974) has provided evidence that when cognitive responses are specific and behavioral implications are straightforward (i.e., there are few intervening events between the cognitive and behavioral responses), a relationship between the cognitive and behavioral responses is found. For instance, the simple but diffuse cognitive response, "Stop eating," is likely to fail to lead to weight loss because persons may forget or judge not applicable this intention in a given specific situation, may succumb to habit, and so on. However, specific cognitive responses, such as "I will leave the room as soon as the main course is

completed," more often lead to completion of the specific behavior and thereby to the general behavioral goal (in this case, losing weight).

Fishbein and Ajzen (1975) discuss three factors that affect the association that may be found between cognitive responses (e.g., behavioral intentions) and behaviors in empirical investigations:

1. *Measurement specificity*—Do the measures of cognitive response and behavior tap equally specific events? The greater the correspondence between the specificities of the measures, the greater the expected association between cognitive and behavioral responses (e.g., Fishbein, 1966).
2. *Response stability*—Is the cognitive response that was measured the same as the one that would be obtained immediately prior to the behavior? The greater the length of time or the greater the number of events that transpire between the measurements of the cognitive and behavioral responses, the greater the likelihood is that an event can occur that would alter the cognitive response. Thus, the behavior may be consistent with the response that existed immediately prior to the behavior but not with a response measured at a much earlier time (e.g., Ajzen & Fishbein, 1974).
3. *Behavioral ability*—Is the person able to control the occurrence of the behavior? The control a person has over the execution of a behavior can range from (relatively) complete (e.g., when selecting a candidate for whom to vote) to almost none (e.g., when the behavior is required by a drug addiction or habit). The greater a person's ability to choose to execute a behavior, the greater the expected association between the cognitive and behavioral responses.

Hoyt and Janis (1975) provided evidence that cognitive responses are not only related to behavior but also influence behavior. During a telephone interview with women who were enrolled in an exercise class, subjects completed a "balance sheet" in which they considered carefully the pros and cons of a personal decision. Half the subjects thought about the consequences of attending class regularly, and half the subjects thought about reducing or abstaining from cigarette smoking (an irrelevant balance-sheet task). Even though all the women had committed themselves to attending the class, attendance (assessed over a 7-week period) was much greater for women who had engaged in cognitive responding about the consequences of attending regularly (relevant and specific cognitive responding) than for women who had responded cognitively about smoking (i.e., irrelevant cognitive processing).

This should not be taken to imply that in some situations, cognitive responses are not used to rationalize a behavior (Kiesler, 1977) or that cognitive responses invariably accompany behavior. For instance, well-practiced (automated) behaviors (e.g., walking, riding a bicycle) require very little cognitive processing and are not easily disrupted by a distractor; behaviors that are not automated completely, however, require more extensive cognitive processing and are more

easily disrupted by a distractor (cf. LaBerge, 1975; Schneider & Shiffrin, 1977). Nevertheless, a significant portion of a person's behavior is not automated and is accompanied by cognitive responses.

Attitudes and Behaviors

Most attitude theorists have assumed that attitudes and overt behavior should be closely related. That is, one should be able to predict a person's behavior from his or her attitude. In fact, this hypothesized relationship is incorporated into some definitions of attitude. Thus, attitudes are sometimes defined as predispositions to respond (Osgood, Suci, & Tannenbaum, 1957) or dispositions to react (Sarnoff, 1960). Allport's (1935) classic definition suggests that attitudes exert a directive and energizing effect on behavior. However, a number of studies have questioned the notion that attitudes direct behavior. In a now classic study, LaPiere (1934) found that although in response to a mailed survey, hotel and restaurant owners indicated negative feelings about serving Chinese, they allowed a Chinese couple accompanied by a Caucasian to frequent their establishments. Similarly, Kutner, Wilkins, and Yarrow (1952) found that restaurant owners would seat a black woman who arrived late to join her companions, but when asked for reservations for a group that included a black woman, they refused.

Carr and Roberts (1965) measured Black-American college students' attitudes toward civil rights activities and their actual participation in civil rights activities. The highest correlation for males and females between attitudes and behavior was only .29. Corey (1937) obtained measures of attitudes toward cheating and actual cheating behavior and found them essentially unrelated ($r = .02$). Wicker (1969), in his extensive review, concluded that there is "little evidence to support the postulated existence of stable, underlying attitudes in the individual which influence both his verbal expression and his actions [p. 75]." Abelson (1972) likewise concluded that there is little evidence to support the assumption that attitudes have systematic effects on behaviors.

Examination of other work in this area, however, indicates that these views are too pessimistic. As Dillehay (1973) has noted, at least two of the classic studies in the area suffer from grave methodological shortcomings. In the studies of both LaPiere (1934) and Kutner et al. (1952), there is reason to believe that different sets of people responded to the written and to the face-to-face requests. The managers of the hotels and restaurants in all likelihood responded to the requests for reservations, whereas desk clerks and hostesses engaged in the face-to-face encounters. Because different people were sampled for the verbal and behavioral measures, there is no particular reason to expect attitude-behavior correspondence.

Two other methodological shortcomings of research in this area may be responsible for other failures to find attitude-behavior correspondence. First, Fish-

bein (1967, 1973) has pointed out that verbal attitudes are often measured with respect to a general class, whereas behaviors are measured with respect to a specific member of that class. For example, a person is asked about blacks in general and then is asked to engage in some behavior with one particular black. If both measures are specific, the discrepancy between attitude and behavior is diminished (cf. Heberlein & Black, 1976; Weigel, Vernon, & Tognacci, 1974; Wicker & Pomazal, 1971). The problem of one measure (attitude) being much more general than the other measure (behavior) was also a problem in correlating behaviors with cognitive responses, and appears again in Chapter 8 in correlating personality variables with attitudes.

Second, the measures of behavior with which attitude measures are to be correlated are typically single acts chosen "on an intuitive and arbitrary basis" (Fishbein & Ajzen, 1974, p. 65). Persons with the same attitude may behave quite differently toward the attitude object in any single setting (i.e., single-act criterion) because of peculiar attributes of the setting rather than the attitude object. However, these persons would be expected to behave similarly toward the attitude object if their behaviors were observed in a variety of settings, because the attitude object rather than peculiarities about a particular setting would be influencing this measure of behavior (i.e., multiple-act criterion).

As Fishbein and Ajzen (1974) note: "A person's attitude towards an object need not be related to any single behavior that may be performed with respect to the [attitude] object" but "it should be related to the overall pattern of his behaviors [p. 61]." Fishbein and Ajzen go on to show that for church-related behaviors (e.g., attendance, contributions), when single acts are correlated with the attitude measures, nonsignificant relationships are obtained. When indices of multiple behaviors (i.e., "Did he not only contribute money, but did he additionally attend church, or buy a raffle ticket?") were used, the correlations between attitude and behavior were much higher (cf. Weigel & Newman, 1976).

Ajzen and Fishbein (1977) have recently reviewed the attitude–behavior literature and have found that in those studies in which the attitude and behavior measures were of differing specificity and/or single behavioral criteria were used, the correlations between attitudes and behaviors were not significant. In those studies in which appropriate measures were employed, in 26 of 26 studies, significant correlations were obtained between attitudes and behaviors. The systematic work of Fishbein and Ajzen has been instrumental in clarifying the relationship between attitudes and behavior. It has led to the conclusion that when the attitude and behavior measures are equally specific and/or equally general, as when multiple behavioral criteria are used, the relationship between attitude and behavior is reasonably strong.

Beyond these methodological considerations, recent research has shown that the attitude–behavior link may be further strengthened by taking other factors into account. For example, Regan and Fazio (1977) have shown that people who form their attitudes on the basis of direct behavioral interaction with the attitude object show greater attitude–behavior consistency than individuals whose attitudes are formed by other means. Schwartz (1978) has shown that a source of attitude–behavior discrepancy is temporal instability in attitudes. That is, attitudes may change in the time between their measurement and the measurement of the behavior, leading to an apparent discrepancy. This discrepancy can be reduced by reducing the time between measurement of the attitude and of the behavior. Interestingly, it appears that the correspondence between attitudes and behaviors can also be increased by getting subjects to think about their attitudes or past behaviors before responding (e.g., Carver, 1975; Snyder & Swann, 1976). Finally, some researchers have indicated that a consideration of personality factors may also enhance understanding of the relationship between attitudes and behaviors. For example, Snyder and his colleagues (Snyder & Monson, 1975; Snyder & Tanke, 1976) have reported that low self-monitoring individuals (those who guide their behavioral choices on the basis of salient information from relevant internal states) show greater attitude–behavior consistency than high self-monitors (those who monitor their behavioral choices on the basis of situational information).

It appears that the pessimism arising from early failures to predict behavior from attitudes may have been unwarranted. When methodological and other relevant factors are taken into account, the attitude–behavior relationship appears relatively robust.

CHAPTER SUMMARY

An *attitude* is a general and enduring favorable or unfavorable feeling about an object or issue. A variety of procedures have been developed to measure an attitude, including the Thurstone, Likert, Guttman, semantic differential, self-report scales, and indirect measures. Each of these techniques is designed to assess an individual's general evaluative reaction to an attitude object (e.g., capital punishment); however, the obtrusiveness and accuracy with which the attitude is measured varies with the technique employed. For instance, although indirect measures may be the most useful in controlling for response biases, they may also be the least accurate assessors of attitude. Although the complex scaling techniques are venerated, the simple self-report scale is used most often.

Cognitive responses are units of information pertaining to an object or issue that are the results of information-processing activity. Cognitive responses have been measured using mechanical, physiological, and oral techniques, but the most popular procedure has been to ask subjects to list their thoughts after hearing a communication. Because investigators have most often been interested in measuring the most salient responses to a communication, time limits on reporting thoughts have usually been imposed.

Once obtained, cognitive responses can be classified into whatever categories are of interest. Responses have been categorized most often along the *polarity* (Is the response in favor of or opposed to the advocacy?), *origin* (Did the response

originate in the message or in the recipient?), and *target* (At what is the response directed?) dimensions. Quantification of these categorized responses can range from simple frequency counts of the responses in each category to elaborate weighting and combination techniques. To date, the simpler frequency-count method has provided as satisfactory a measure of cognitive responses to persuasion as the more elaborate techniques. The thought-listing measure of cognitive responses appears to be be about as *reliable* (the extent to which a measure contains random error) and *valid* (the extent to which a measure assesses what it is supposed to assess) as traditional measures of attitude. The thought-listing procedure can also be employed to obtain a measure of *cognitive structure* (the extent to which a person's cognitions are organized and interrelated).

Attitudes and cognitive responses are highly related, and each influences the other in some instances. Concordance between cognitive responses and behaviors also exists, although the manner in which the responses are measured affects the extent to which these variables are related. For instance, the specificity of the cognitive and behavioral responses, the stability of the cognitive responses, and the ability of the individual to control the occurrence of the behaviors affect the degree to which these responses covary linearly. The relationship between attitudes and behaviors is also affected by the measurement procedures employed. When the measures of attitudes and behaviors are equally specific, the correlation between these responses is greater than when the measurements of the responses are not equally specific. Furthermore, measurement of multiple attitudinal and behavioral items (i.e., multiple-act criterion) provides more reliable indications of these responses and typically increases the extent to which knowledge of attitudes allows prediction of behavior.

Finally, the attitude–behavior relationship is stronger when the relevant attitude has been formed as a result of direct behavioral interaction with the attitude object, when the lapse between the measurements of attitude and behavior is brief, and when persons are encouraged to think about their attitudes prior to responding.

3 Thought Disruption and Persuasion: Assessing the Validity of Attitude Change Experiments

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INTRODUCTION

Now that the necessary background material has been covered and it is clear that attitudes and cognitive responses can be measured, some fundamental questions about persuasion may be addressed: How is attitude change studied experimentally? How can the cognitive response approach help in understanding the process of persuasion? What kinds of predictions can the cognitive response approach generate? How can these hypotheses be tested? Consider the following two examples:

> A man who is a heavy smoker is driving home from work. A public service message comes on the radio and discusses the undesirable consequences of smoking. The man is attempting to listen to the message, but at the same time he is watching the other cars on the busy freeway and trying not to miss his exit.
>
> A woman who considers herself an agnostic is at an outdoor religious rally listening to a world-famous evangelist discuss the merits of Christianity and the Bible. Suddenly, it begins to drizzle slowly. Although the woman can clearly hear the message over the loudspeaker system, she is diverted from thinking about its contents to thinking about how to keep herself dry.

What these two situations have in common is that a person who is the target of a possible persuasive influence attempt is distracted by some external stimulus from paying full attention to, and thinking in any great depth about, the arguments in the persuasive communication. A researcher employing the cogniti